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REMARKS

Status of the Application:

Claims 1–16 are the claims of record of the application. Claims 1–16 have been rejected.

Amendment to the Claims:

Applicant has cancelled claims 1, 2, 4, 5, 9, 10 and 13–16. Applicant has further added the limitation of the parent claim to any remaining claims that depend on a cancelled claim. Applicant has further amended the claims to make clear that there are at least three speakers along the left or right hand periphery, and to make clear that the panning is in the front to rear or rear to front direction along the periphery. See FIG. 6 for support of the arrangement of speakers.

Claim Rejections -35 USC § 102

In paragraph 2 of the Office Action, claims 1, 2, 4, 5, 9, 10 and 13–16 have been rejected under 35 USC 102(e) as anticipated by Arnold et al. (U.S. Patent 6,154,549). Applicants have cancelled claims 1, 2, 4, 5, 9, 10 and 13–16. Such cancelling should not be construed to indicate that the applicant agrees with the examiner's rejection. The cancelling is simply a desire by the applicant not to argue for these claims at this stage.

Claim Rejections -35 USC § 103

In paragraph 4 of the Office Action, claims 3, 6–8, 11 and 12 have been rejected under 35 USC 103(a) as being unpatentable over Arnold et al. (U.S. Patent 6,154,549, hereinafter "Arnold") in view of Cashion et al. (U.S. Patent 5,809,149, hereinafter "Cashion").

In particular, the examiner has argued that Arnold discloses a method and apparatus of panning audio signals using attenuation tables (Arnold's 38) and a plurality of speakers (Arnold's 16). ***Arnold does not disclose at least three speakers along the periphery as is in the claims, as amended.*** Further, with respect to claim 3, and the other remaining independent claims, as the examiner has admitted, Arnold does not include the step of panning using delaying the audio stream to the speakers by an amount that varies with the panning gain. The examiner asserts that Cashion discloses an apparatus for creating 3D audio imaging and that the abstract discloses that the apparent location (azimuth) of a sound source is controlled by amplitude scalers and time delays. Furthermore, the examiner asserts that Cashion's Figure 4 illustrates that the angle of a sound source is dependent on the amplitude of the audio signals to the speakers and the delay between the speakers.

Applicant disagrees with this characterization of Cashion's Figure 4. Cashion does not deal with loudspeakers, but rather a pair of headphones. That is, one left hand headphone, and one right hand headphone generating sound to the listener.

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It should be recognized that Cashion bears little relevance to the present invention, because Cashion describes a system in which the listener is using headphones, and each headphone channel has different delay applied, with the delay changing as a function of the direction of arrival of the virtual sound source. The invention of Cashion uses delay to emulate the small changes in delay that should occur in the Head-Related-Transfer-Function when a virtual sound source position moves. In contrast, the present invention as claimed in the remaining claims refers strictly to loudspeaker systems, where the delay is used to provide a better panning impression, for sounds that are panned from one speaker to another when a set of speakers is used.

There is no mention in Cashion or in Arnold of how to form delays to a set of at least three speakers on the periphery, e.g., the left of the right hand, to simulate panning along the front to rear or rear to front direction as claimed. Therefore, it would *not* have been obvious to one of ordinary skill in the art, nor is any incentive shown, for combining Arnold and Cashion to arrive at the present invention, as claimed.

The remaining claims as amended are allowable over the cited prior art, and action to that end is respectfully requested.

Conclusion

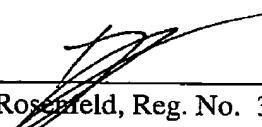
The Applicants believe all of Examiner's rejections have been overcome with respect to all remaining claims (as amended), and that the remaining claims are allowable. Action to that end is respectfully requested.

If the Examiner has any questions or comments that would advance the prosecution and allowance of this application, an email message to the undersigned at dov@inventek.com, or a telephone call to the undersigned at +1-510-547-3378 is requested.

Respectfully Submitted,

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Date


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